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Perception of farm women in adoption of Mat nursery for raising rice seedling in Sonitpur district of Assam

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Abstract
Mat nursery for preparing rice seedlings is a technique of using less land than traditional field nurseries with the advantage of seedlings get ready for planting within 15-20 days after seeding. To assess the opinion of farm women in terms of adoption of this technology a study was conducted in Sonitpur district of Assam in 2021-22 comprising 50 nos. of women farmer from five different villages. Perceptions were documented in terms of production cost, production benefit, advantages for human resource along with some constrains. Data were collected through interview method. Perceptions of farm women in the study revealed that mat nursery has highest impact on production of their products followed by reducing health constrains.

Keywords: mat nursery, rice cultivation, demonstration, perception, farm women, drudgery

Introduction
India is an agricultural country and almost 70 percent of the total population depends primarily on agriculture sector for their livelihood. India is the second largest producer of rice in the world. Rice is cultivated in almost all the states of India and the main rice producing states are Tamil Nadu, West Bengal, Andhra Pradesh, Bihar, Punjab, Orissa, Uttar Pradesh, Karnataka, Assam and Maharashtra (Mohanty *et al*., 2008) [3]. Along with some other regions rice is the staple food of Assam.

In India, Agriculture employs about 80 percent of rural women. Women are engaged in all levels of agricultural activities right from production to marketing. As per Pingali *et al*. (2019) [4], the ratio of women to men working in agricultural sector has increased over the time and made greater amount of contribution to GDP per capita. They are the momentous demographic group for sustainable food system (FAO, 2011) [1]. Though modern agricultural practices are taking place at a rapid pace and replaced most of the traditional practices the works performed by the women remain more or less the same (Kishtwaria *et al*., 2009) [2].

Rice is dominantly grown by transplanting of seedlings. In conventional rice cultivation, the seedlings are typically raised in seedbeds in the main field where seedbeds may be prone to pest and diseases, and seedlings may not be as uniform in size and quality. Moreover, protecting seedling from street as well as domesticated animals need frequent observation, which is related with labour cost. A "mat nursery" typically refers to a technique where rice seedlings are grown on a mat made of straw, polythene sheets or other organic material. The mat is placed on a flat surface that has been levelled and prepared with appropriate soil and nutrients. Sprouted rice seeds are sown on the mat and are typically allowed to grow for 14-18 days, depending on the weather conditions and the growth rate of the seedlings. There are two methods in mat-type nursery raising i.e. tray method (off-situ) and open field (in-situ). Modi *et al*. (2022) [7] found that open field method of nursery raising is most commonly practiced in India. In the open field also two methods are practiced-dry method and mud method. In the mud method, seedlings are sown by mixing soil and compost and in the dry method; seedlings are sown by thinly coating polythene with small holes made with manure. The polythene prevents the roots of the seedlings from touching the soil. This creates a thick mat or board of seeds. Such seedbeds are the basic requirements for mechanical seed planting. The seed mat or board is cut into sections to fit the seed tray of the transplanter. Most importantly seedlings get ready for planting in the root zone within 14-18 days from sowing. But there are different views in terms of both positive and negative for adopting such technology.

Keeping this in mind, an attempt was made to know that how farm women perceived advantages and disadvantages of practicing this technology of mat nursery in regards to production cost, production benefit and drudgery involved in uprooting and other constrains.

Materials and Methods

The study was conducted in Sonitpur district of Assam. The study was carried out under demonstration programmes of Krishi Vigyan Kendra, Sonitpur. The women beneficiaries of the demonstration programmes were purposively selected from five villages *viz*. Amolapam, Napam Chapori, Seunichuk, Bhojkhowa Chapori and Jorgarh to gather information. Total fifty farm women were selected as a sample for the study. Different capacity building programmes such as training, awareness and demonstration were undertaken to achieve sustainable behavioral changes. The study is confined only with the farm women who are adopting mat nursery in mud method.

Data were collected through interview method. The interview schedule was prepared keeping in mind the objective of the study. Prior to data collection, purpose of the interview was explained properly to the women farmer (respondent). The consent and cooperation of the respondent were sought for an interaction (interview) and was carried out as per the convenience of the respondents.

For assessing their perceptions towards mat nursery a five point Likert scale (Strongly agree-5, Agree-4, Neutral-3, Disagree-2 and Strongly disagree-1) was used where 1 represent strongly disagree and 5 represent strongly agree. Those who strongly agree on the point are awarded with point five and reducing by one point to the subsequent lower grade opinion. The scores of the responses were calculated by summing up the scores of their responses. Ranking of perception was done based on the cumulative mean score of the statements under the subheads.

Result and Discussion

To explore how women farmer perceive the impacts of mat nursery in terms of reduction in cost of production, production of products, non material benefits like reduction on health hazards and other benefits along with some constrains, a five point Likert scale was used. Those who strongly agree on the point are awarded with point five and reducing by one point to the subsequent lower grade opinion. Statements were formulated in terms of qualitative impact of mat nursery and attempt was made to explore how they perceive the changes in certain unobservable qualitative aspects.

Perception of women farmer on mat nursery

Respondents were asked to accept or reject in varying degree of various statements in Likert scale and rank their responses accordingly. Statements were set in different categories and equal numbers of statements were formulated in each category. Their perceptions about how they feel the changes of adopting mat nursery as compared to the traditional methods, which they practiced before.

Table 1 revealed that respondents' perception on adoption of mat nursery helps them more in increase production of their product compared to other benefits. Cumulative mean of responses under this category has highest score of 4.11with a higher score of the statement that 'Mat nursery produces healthier and faster-growing seedlings which has positive influence on production'. The findings of Dixit *et al*. (2007) also revealed that the transplanting mat type seedling is becoming more popular due to its superior performance and reduced labour requirement.

Cumulative mean of responses under advantages for human resource come in second category followed by production cost. Under advantages for human resource category statement of "uprooting of seedling in mat nursery is easier thus reducing bending stress" scored highest. Because the respondent has experienced this change in mat nursery compared to seedbed raised in main field. Moreover, in mat nursery the polythene sheet prevents the seedling roots from penetrating the underlying soil and thus made it easier to uproot the seedling without damaging the root system. Apart from that required grip strength for uprooting seedling in mat nursery and time management in terms of protecting seedbed from stray cattle found more helpful for them. In cost of production category cumulative mean is 3.74, which comes in third category of ranking. They perceived that though the initial cost for bed preparation was more than the traditional practice, requirement of other inputs in mat nursery is less, infestation of pest and diseases are less in mat nursery and importantly wastage of seedlings in mat nursery is less. Rajendran, R., (2004) [5] also revealed in a study that by using the mat nursery, farmers can save on seed by 80 percent to 90 percent, water by 55 percent, and labor by 34 percent as compared to traditional rice nursery, thereby an overall saving of cost by about 50 percent was achieved in the mat nursery.

In the category of other advantages of mat nursery, respondents showed positive perception. Farmers' perception in the category of constrains like requiring technical guidance, initial preparation cost of material and labour showed lowest rank. This may be mainly because of advantages of mat nursery is more compared to constrain. Though the respondents did not have the expertise in developing mat nursery in the initial stage, they received the guidance from the scientists of Krishi Vigyan Kendra, Sonitpur before implementing the demonstration programme on mat nursery.

Conclusion

The advantage of using a mat nursery is that it provides a controlled environment for the seedlings to grow, including stable moisture and nutrients levels, which can help increase their survival rate when transplanted to the main field. Mat Nurseries can be set up in a relatively small space mostly backyard than traditional rice nurseries. This can save time and labor for farm women, otherwise they would have involved in frequent field visit to protect seedling from domesticated animal. However, the production cost of mat nursery in rice cultivation can vary depending on several factors, such as location, size of nursery and cost of labour and materials. From the perception of farm women revealed adoption of mat nursery is beneficial in terms of production of their produce. Though initial cost is little higher than traditional practices the adoption of this technology is increased mainly because of less nursery maintenance cost and health related drudgery for uprooting of seedlings.

Table 1: Perceptions of farm women

Sl. No	Opinion	responses					Total score	Cumulative Mean	Rank
		SA	A	N	DA	SDA			
Production cost									
1	Raising seedling at mat nursery requires fewer seeds and lower amounts of inputs such as fertilizer and water, thus reducing nursery costs	12	26	6	4	2	192	3.74	iii
2	Wastage of seedling in mat nursery is less than traditional practice.	10	31	1	8	0	193		
3	In Mat nurseries infestation of pest and diseases are less thus less production cost than traditional.	5	25	13	5	2	176		
Production benefit									
4	Seedlings of mat nursery produce higher yields	12	30	8	0	0	204	4.11	i
5	Mat nursery produces healthier and faster-growing seedlings thus positive influence on production	19	27	0	4	0	211		
6	Separating seedlings before transplanting is easier, thus minimizing root damage, hence healthy seedling for transplanting.	12	33	0	5	0	202		
Advantages for Human resource									
7	Uprooting of seedling in mat nursery is easier thus reducing bending stress	14	34	0	2	0	210	3.90	ii
8	Uprooting of seedling need less grip strength	2	34	0	14	0	174		
9	Mat nursery can raise in the backyard also thus less time resource of human in maintaining.	8	35	7	0	0	201		
Other benefits									
10	Mat nurseries are beneficial for small holder farmers with limited land resources	5	25	13	5	2	176	3.53	iv
11	Raising mat nursery and selling the seedlings can be a good business opportunities for women	0	28	18	2	2	172		
12	Mat nursery gives uniform seedlings thus less wastage of seedling	2	38	0	10	0	182		
Constrains									
13	Raising seedling in mat nursery needs technical guidance.	18	22	0	10	0	198	2.83	v
14	Initial Preparation of mat nursery is tired sum	0	10	0	30	10	110		
15	Seed treatment and preparation of soil mixture for mat nursery require high cost	0	20	0	10	20	120		

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Reference

1. FAO, 2011. The State of Food and Agriculture 2010-11: Women in agriculture: Closing the gender gap for development. ESA Working Paper No. 11-02. Agricultural Development Economics Division, the Food and Agriculture Organization of the United Nations. http://www.fao.org/publications/sofa/en/. In Rural Women: Key to New India's Agrarian Revolution, Kurukshetra, December, 2021.
2. Kishtwaria J, Rana A, Sood S. Work Pattern of Hill Farm Women – A Study of Himachal Pradesh. Studies on Home and Community Science. 2009;3(1):67-70.
3. Mohanty SK, Behera BK, Satapathy GC. Ergonomics of farm women in manual paddy threshing. Agricultural Engineering International: the CIGR E journal. Manuscript MES 08 002. 2008, X.
4. Pingali P, Aiyar A, Abraham M, Rahman A. Transforming Food Systems for a Rising India. Palgrave Studies in Agricultural Economics and Food Policy. 2019, ISBN 978-3-030-14408-1. ISBN 978-3-030-14409-8 (eBook) https://doi.org/10.1007/978-3-030-14409-8. In Rural Women: Key to New India's Agrarian Revolution, Kurukshetra, December, 2021.
5. Rajendran R. The International Rice Research Inst., 4030 Los Banos, Laguna (Philippines); Ramanathan, S.; Balasubramanian, V.; Modified rice mat nursery for producing robust young seedlings in 15 days for early transplanting and enhanced productivity under transformed rice cultivation. Philippine Journal of Crop Science (Philippines). 2004, ISSN: 0115-463X.
6. Role of women in agriculture and its allied fields – Vikaspedia. https://vikaspedia.in › agriculture › role-of-women-in.
7. Modi Rajesh U, Singh Arshdeep, Ali Mudasir, Manes GS, Dixit Anoop. Status of mat-type nursery raising techniques for rice cultivation in India - A Review. SKUAST Journal of Research. 2022;24(2):124-132. DOI: 10.5958/2349-297X.2022.00023.X